Developments in scholarly and electronic publishing, bibliometric experiments and legal issues in information work

DEVELOPMENTS IN SCHOLARLY AND ELECTRONIC PUBLISHING, BIBLIOMETRIC EXPERIMENTS AND LEGAL ISSUES IN INFORMATION WORK

Publications submitted by

Charles Oppenheim
BSc, PhD, DipInfSc, CertEd, HonFCLIP, FCLIP, FRSA, AUMIST
Professor of Information Science in the Department of Information Science

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Loughborough University

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To Adrienne

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Introduction

This submission consists of published papers describing research carried out over a period of 20 years on three aspects of information science. None of the publications have been previously submitted for a degree of Loughborough, or any other University. However, it should be noted that the series of papers entitled RoMEO Studies will be the subject of a submission for a PhD by publication at Loughborough University by Ms E.A. Gadd of Loughborough University Library and are therefore not included in the publications that have been copied or analysed for this DSc submission.

I have included a commentary on the 52 papers being submitted. This provides a guide to the nature and importance of the paper (or group of papers) and the context in which the paper(s) appeared. My complete output can be found in my c.v., which also forms part of this submission (as Appendix C).

The focus is on three research areas. The first major area of research interest is bibliometrics, especially citation studies. The second focus is in the area of scholarly and electronic publishing, including the growth and characteristics of the electronic information industry, the economics of digital journals, and aspects of Open Access and Institutional Repositories. The final area of my research is legal issues in information work, especially in the fields of copyright, data protection and Freedom of Information; a list of all my publications in the period 1985 to 2005 in these three areas is provided after the commentary. In the case of journal articles, refereed journal articles (Category 11) are indicated by an asterisk. All other journal articles listed are in professional journals. The 52 publications that form this submission have been marked with a † on this list. The vast majority of my complete published output (nearly 500 items in total) are not submitted, either because they do not fall within the three subject areas of this submission, or, where they do fall into one of the three areas, because they appeared in non-refereed publications, or do not make a sufficiently major or significant contribution.

Copies of the 52 publications I wish to submit can be found in Appendix A. Although my complete publications list includes many conference papers and reports, in the field of information science these are generally considered to be less prestigious than refereed journal articles.

Much of my research output is jointly authored. Sometimes, this has been the result of teams created to carry out funded projects and where I have been the Principal Investigator (very occasionally, co-investigator), and sometimes by students (final year undergraduate, Masters or doctoral) under my

supervision. In the vast majority of cases, I drafted the papers and they were checked by my co-authors, though in a few cases, ex-students did not reply to my request for comments. In a very few cases, one of my co-authors drafted the paper, and I approved it. In virtually all the jointly-authored papers I have written, I was the senior author who dealt with all requests for corrections and amendments from referees or editors. My normal policy is to order authors' names in alphabetical order of surname, irrespective of size of contribution. In the few cases where this rule does not apply, it was at the special request of one or more of the co-authors. In all cases, however, there is no significance to the order of the names in the articles.

Most of the research reported below was undertaken as a result of my own initiative, though of course many of the ideas came from discussions with colleagues and/or from reading the literature. However, in a few cases, my students suggested the research topics.

Commentary on the submission

Information science can be defined, very broadly, as the study of factors affecting or related to the creation, storage, retrieval, use, dissemination, preservation and destruction of information. This submission is composed of publications covering three broad subject areas within information science, i.e., bibliometrics, scholarly and electronic publishing and legal issues in information work. Bibliometrics is the study of mathematical characteristics of literatures and citations to those literatures; the scholarly and electronic publishing industries are major creators of information and have been subject to major changes in recent years; all information professionals interact with the law as the creation, dissemination and preservation of information are subject to legal constraints of one type or another. Thus, although on the surface these three areas of research interest appear disparate, they do interlink within the umbrella of information science.

The papers cover the period 1985 to the end of 2005. It should be noted that there are few papers published between 1985 and 1992, as at that time I worked in the electronic information industry, where both scholarly research and publications based on that research were discouraged, although articles promoting products were always encouraged. In my final job in the private sector (Reuters, 1987-1992), all articles for publication had, in addition, to go through a formal vetting process.

I have noted the number of citations received by each of the papers at the end of 2005 (as recorded by *Web of Science*, denoted by W and by *Google Scholar*, denoted by G) for which the full text has been placed in Appendix A. The numbers of citations are not high, but it should be noted that information science is not that well covered by *Web of Science*, and that other than in fields such as chemical informatics or information retrieval, the field of Information Science is in any case not characterised by high citation counts. *Google Scholar* only counts citations to documents that are available in electronic form. It therefore tends to report higher citation counts for recent articles than for older ones. The two sets of citation counts should be viewed as complementary – both services have their strengths and weaknesses in regard to providing citation data, but *Web of Science* is certainly the more authoritative of the two. To put these counts into context, an analysis of my citation performance compared to other leading academics in the field can be found in Appendix B, a paper accepted by *Journal of the American Society for Information Science and Technology* and due to published in mid 2006.

The areas of my research interest are discussed below, together with the relevant item numbers recorded in the footnotes.

Bibliometrics (16 articles submitted)

As noted above, bibliometrics is the mathematical study of phenomena associated with documentation and publications. The term was first used by Alan Pritchard in 1969[1]. In some countries, other terms such as scientometrics or informetrics are used. The mathematical study of the literature has a long history, predating the use of the term bibliometrics. In the early 20th century, there were studies on the citations to be found in chemical journals, and in the mid 20th century, studies on the growth of the literature and on the scatter of relevant articles in different journals were extremely popular. These early studies had to be carried out manually, and were therefore time-consuming and laborious. With the advent of electronic databases, bibliometric studies became easier to carry out[2], and none more so than citation studies.

The mere fact that there is an area of study called "bibliometrics" implies that there are regularities in patterns of authorship, publication and use of the literature, and that study of these regularities can yield fundamental principles, which will hold true for literatures, which have yet to be studied.

Studies of the growth and characteristics of the literature can help a library or information manager decide which books to subscribe to, to rank journals in order of importance so that one can decide which journals and abstracts services to subscribe to, and thereby get optimum coverage of the literature with minimum expense. However, bibliometrics is primarily considered to be interesting in its own right rather than as a tool to help librarians make purchase or cancellation decisions. Certainly, there are a number of so-called information science laws[3] that seem to apply in most situations and that can be tested using bibliometric techniques. These "laws" are more precisely described as generalisations about patterns that seem to be common (but not necessarily universal) in the publication and use of information.

Arguably, the most popular area for bibliometric study is citation analysis, and it is in this field that I have contributed most of my bibliometrics papers. Citation indexing is important to information scientists for two reasons. Firstly, it is the first (and arguably the only current) example of a commercially successful automatic indexing technique, as shown by the

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[1] A. Pritchard, Statistical bibliography or bibliometrics? *Journal of Documentation*, 1969, **25** (4), 348-349

[2] See item 121 in the publications list

[3] A collection of the early papers describing these laws can be found in A.J. Meadows (Editor), *The origins of information science*, Taylor Graham/IIS (1987).

success and longevity of the commercial services provided by the Institute for Scientific Information.

Secondly, citation indexing gives remarkable insight into the way scholarly research is carried out, and provides insights for studying the history of scholarly subjects, the growth and interaction of subject domains, the prestige or research impact of academics, the research impact of universities and their departments, and the impact of entire countries' research.

Almost all journal articles contain citations. A citation is a reference to some previously published work that is relevant to the argument the author wants to make. The author may be criticising the earlier item, may be building on it, may be using it to enhance his argument, or may be acknowledging an early pioneer. A citation therefore links the earlier cited paper to the later one that cites it. A citation index is built around this link. It lists publications that have been cited. The list of cited papers might include many earlier papers written by the same author. This is not necessarily because the author is an egomaniac, but because the author knows his or her own papers best and/or the author's research output relates to a specific subject field where the author him or herself is the specialist. The practice of providing citations in journal articles is now a well-established part of the normative approach to scholarly communication. A number of major reviews of citation analysis have been published.[4]

Citation studies are not new. The first, by Gross and Gross, appeared in *Science* in 1927[5] with the uninspiring title "College libraries and chemical education". The authors took a single year's output from the *Journal of the American Chemical Society*, and looked at which journals the authors of articles had cited. They ranked the number of times each journal had been cited. This paper emphasises two points that are germane to all citation studies. Firstly, there is an implicit assumption that the more an item is cited, the more important it is. Secondly, using the results of such studies, one can make decisions on cancellation of journal subscriptions and the like.

One can also compare citation counts to other measures of the value of an individual, an institution, a journal, or an entire country, for example: receipt of the Nobel Prize; Fellowship of major scientific academies, such as the Royal

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[4] See, for example, E. Garfield, *Citation Indexing: its theory and application in science, technology and humanities*, Wiley (1979); B. Cronin, *The citation process*, Taylor Graham 1984; many of the essays in B. Cronin and H.B. Atkins (Editors), *The Web of Knowledge*, ASIS/Information Today (2000)

[5] P.L.K. Gross and E.M. Gross, College libraries and chemical education, *Science*, 1927, **66** (1713), 385-389.

Society or the US National Academy of Sciences; receipt of large awards of research funding; numbers of papers published; assessment of a scholar's status by his/her peer group; assessment of the status of a journal by readers; use of the scholar by Government, e.g. to be a member of an advisory committee; or prestige of a University in the country All of these measures, whether objective (did s/he get the Nobel Prize or not?) or subjective (which is the better journal - *Journal of X* or *Journal of Y?*) can be precisely measured. Citation counts provide strong correlation with these measures. I wrote a well-received review on these and related matters on citation analysis in 1994.[6] This paper was jointly authored with a Masters student, and was the subject of a special annual award from ISI for the best citation research in the world that year. The paper was more than just a review of the pros and cons of citation analysis; it also included a citation analysis of an individual (Gene Garfield, the founder of ISI). Citation analysis of individuals is rarely conducted, not because it is difficult to do, but because it is even more sensitive than citation analysis of journals or Departments. However, recently, a new citation-based metric for individuals, the *h* index has been developed. I have undertaken research[7] on the *h*-index in recent months. This as yet unpublished paper can be found in Appendix B.

My best-known research in citation analysis has been examining the correlation between citation counts and scores in the Research Assessment Exercise. Some of the research was carried out on my own, and some by students under my supervision. All the RAEs so far have ignored citation analysis, and have relied instead on the group of assessors reading the articles put forward by the Departments and deciding on a score based on their view of the quality and coherence of these papers.[8]

Despite the vigorous debate about the validity of citation counting, there is usually a strong positive correlation between citation counts and other means of measuring research excellence. So I looked for any correlation between citation counts and RAE rating in four subject areas: "Library and Information Management"; anatomy; archeology; and genetics.[9] Staff listed as full time lecturers, senior lecturers, Readers, Professors or Heads of Department were included. Research Fellows and Research Assistants were

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[6] See item 35 in the publications list

[7] C. Oppenheim, the h index for UK library and information scholars, paper submitted to *Journal of the American Society for Information Science*

[8] See item 101 in the publications list for a general historical analysis of how the RAE has been performed. Of course, it must be stressed that RAE scores are not just based on the assessors' opinion of published output, but there is no question that it is a major factor in RAE scoring decisions.

[9] See items 40, 51, 69, and 102 in the publications list

ignored, as were any Honorary or Visiting academics listed. Self-citations were studied. In a small number of cases, the members of staff had common names and initials, and therefore, other authors with exactly the same surnames and initials in quite different disciplines who were being cited could have distorted the data. Such false drops were removed by inspection of the titles of the articles being cited.

Having obtained the citation counts for the individuals, citation totals for each Department, and citations per member of staff for each Department were calculated. The Departments were ranked in order of citations, and in order of average number of citations per member of staff. The RAE rating for the departments was also ranked, and I then carried out correlation analyses. In all the subjects and all the time periods studied, there was a statistically significant correlation between the RAE rating and the total (and average) number of citations received by academics in the Department.

These results can be viewed from two points of view. The first point of view is the argument whether citation counting is reliable. The RAEs involved intensive study of the research performance of Departments. The judgment made by the panel of experts correlates strongly with citation counts. This is further support for the contention that citation counting is a reliable measure of quality of research. There is, however, another conclusion one could draw. Millions of pounds are spent on running each RAE. In contrast, each of my studies involved a few weeks' work. Yet, my citation counts produced RAE rankings that were virtually identical to that produced by the RAE panels. This raises the question why the RAE is carried out in such a laborious manner and why citation counting is not used instead of, or at minimum as well as, the well-established subjective peer review. This matter has been considered by the Higher Education Funding Councils and was considered by the Roberts Review of the RAE. Although the suggestion of employing citations counts was firmly rejected, primarily because of concerns that it did not reflect research quality, in the forthcoming RAE, it is likely that some panels will informally use citation counts to help build a picture of the Departments under scrutiny. Papers by researchers from Sheffield University and London University[10] have confirmed my results.

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[10] Seng, L. and P. Willett, The citedness of publications by United Kingdom Library Schools *Journal of Information Science* 1995, 21(1): 68-71; Smith, A. and M. Eysenck. (2002) The correlation between RAE ratings and citation counts in psychology, http://psyserver.pc.rhbnc.ac.uk/citations.pdf.

I have also carried out research on whether RAE scores can be correlated with library expenditure in given Universities.[11] The results are counter-intuitive, with a weak negative correlation being identified. It was, however, not statistically significant, and certainly no cause and effect relationship can be deduced from these results.

There are a three ways one can find out why someone has cited another item. These are: develop a typology (or use an existing typology) of reasons for citing, inspect the citing articles and form one's own judgement as to the reason why the citation took place; the second way is to interview citers some time after their article was published to ask them to recall why they cited the earlier item; the third is to interview scholars at the time they are writing an article to ask them why they are citing what they are citing. Each of these methods has its pros and cons. The former is easiest to carry out, but inevitably involves an element of arbitrary guesswork, tying to put oneself in the mind of the author of the citing article. The second method is extremely labour intensive, and relies on the honesty and reliability of the memory of the citing authors. Furthermore, only those authors with an interest in the research are likely to respond to approaches, so the respondent sample will be biased. The final method is also labour intensive, and would require the researcher to know who is currently writing articles that cite earlier papers.

Unfortunately, researchers in this field tend to adopt different classifications of reasons for citing. Whatever the classification used, some intriguing results can be found by using such classifications. Overall, one finds that there is a complex mixture of reasons for making citations in every paper, and that no one reason for citing dominates. I and some of my students looked at the famous 1953 *Nature* article by Watson and Crick that announced the discovery of the double helix structure of DNA[12]. We looked at articles that have cited this seminal work, and the reasons for these citations based upon a typology previously used in an early study on reasons for citations.[13]

We found that between 1961 and the end of 2002, there were 2,061 citations to the Watson and Crick article, an average of 49 citations per year. The average number of citations per year in the last ten years was nearly 81 citations per year, and 2002 was the year the paper received the most citations ever. This result is counter-intuitive, as one normally expects the numbers of citations to

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[11] Item 110 in the publications list; this item is submitted in the belief that even negative results can be useful in making decisions based on research results

[12] See item 111 in the publications list

[13] C. Oppenheim and S.P. Renn, Highly cited old papers, *Journal of the American Society for Information Science*, 1978, **29**, 225-231.

any given paper decline over time, as the areas of interest to scientists move on, and as any seminal paper becomes embedded into the scientific subconscious without having to be referred to explicitly. We found that only two (0.097%) of the more than 2,000 articles citing Watson and Crick were written by Watson or Crick. This is a very low self-citation rate. We found that 75% of the citations in the articles cited Watson and Crick for historical acknowledgement or background discussion of the work itself. We found just 2%, which criticised the Watson-Crick theory or said it needed to be developed further. It is not clear why the paper is cited so heavily. Other articles critical to the identification of the structure of DNA in the same issue of *Nature* have a much lower citation count.

I have a long-standing interest, dating back to 1976, in patent bibliometrics and patent citation studies. Patent bibliometrics are unlike those of scholarly journals. For example, a given invention may appear in a family of many patents, all deriving from a single application in many patent-issuing authorities. In contrast, scientific norms require a scholarly journal article to appear in just one place – normally as a journal article (or, at most, in one place plus an Open Access repository). Furthermore, even within a given patent-issuing authority, the material may appear once (as an early published application) or twice (additionally, as the final granted patent). Thus, assumptions about the growth of the patent literature, the dominance or otherwise of particular companies or countries in inventions that are based upon knowledge or experience of the growth or other characteristics of the journal literature are both facile and misleading[14]. Nowhere is this truer than in the area of patent citation analysis. In addition to the points made above, there is a further complication when examining citations to be found in patent specifications. Unlike for journal articles, citations in patents are placed either by a patent examiner to indicate prior art that the examiner has found that is relevant to the legal claims in a patent application, or by the applicant to anticipate such items being identified by the examiner. They are therefore created either by a third party, or by the applicant but for quite different reasons from citations in journals. Unfortunately, much of the research in patent citations assumes that patent citations are analogous to citations in journal articles. I have reported on the use of online databases to undertake studies on patents and patent citations[15]. I have been actively undertaking

[14] For good examples, see E. Simmons, Patent statistics and analysis: trends disrupted – patent information in an era of change, *World Patent Information* 2005, **27** (4), 292-301.
[15] See item 7 in the publications list

research into patent citations since 1977[16], and have[17]reviewed the issues involved, highlighting the mistakes made by other researchers.

I have carried out two studies, jointly authored with staff from the Department of Chemical Engineering in Loughborough University and one with a student supervised by me, on citation analysis of chemical engineers worldwide[18], and the first of two papers examining the way students cite in their dissertations[19]. The former papers examined novel ways of analysing and displaying the citation characteristics of individual chemical engineering scholars. The taxonomies and spider-web displays we developed are unusual. The paper on student citations showed a heavy, and arguably somewhat worrying, trend by student to over-rely on the Internet for supporting evidence when carrying out research for their dissertations.

One of the more intriguing applications of citation analysis is in the Web environment. There has been considerable work undertaken, primarily by Professor Mike Thelwall of Wolverhampton University, on Web link analysis, treating a link between two Web sites as equivalent to a citation[20]. I currently am undertaking a joint research project employing Web link analysis with Professor Thelwall. Articles based on this work have been drafted, but have not yet been accepted and so are not included in this submission.

I recently completed a JISC-funded study on the use of citation indexes in Open Access repositories. This research, led by me but carried out jointly with Southampton University, considered how reliable references could be harvested from the large and sometimes unsystematically prepared scholarly outputs entering institutional and subject-based repositories[21]. The report recommended a variety of methods for ensuring that citations at the end of such digital objects follow standardised rules, thereby making the job of search engines and other services that prepare citation indexes that much easier. ISI has recently announced the launch of its *Web Citation Index* and this service in particular would benefit from the recommendations made in our report.

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[16] My first article on the topic is P. Ellis, G. Hepburn and C. Oppenheim, Studies on patent citation networks, *Journal of Documentation*, 1978, **34** (1), 12-20

[17] See item 182 in the publications list

[18] See items 68 and 81 in the publications list

[19] See item 83 in the publications list; a follow-up paper with more recent data has been submitted to *Education for Information*

[20] M. Thelwall, L. Vaughan and L. Bjorneborn, Webometrics, *Annual review of Information Science and Technology*, 2005, **39**, 81-138 provides a good review.

[21] See item 165 in the publications list

Amongst non-citation based bibliometric studies, I jointly supervised an RA in preparing a very well-received review of methods of evaluating the efficiency of Web search engines[22]. I have also published two papers with a PhD student under my supervision on the bibliometrics of the RAE with an emphasis on Business and Management Studies[23]. These papers demonstrated three important results. The first key conclusion was that the idea that one should only submit articles for the RAE in high Impact Factor[24] journals in order to get a good RAE rating is incorrect; it really is the quality of the article that counts, not the vehicle it appeared in. The second confirmed that Business and Management Studies is a highly multidisciplinary subject area, and that attempts to produce a "core list" of key journals in the field are doomed to failure. The final result was showing for the first time that one of the best-known bibliometric "laws", Bradford-Zipf[25], applies to journals returned for the RAE (in this case, in Business and Management Studies), thereby confirming the general applicability of Bradford-Zipf to a wide variety of circumstances. Other papers on characteristics of the RAE are described under "Scholarly and Electronic Publishing" below.

Scholarly and electronic publishing (14 articles submitted)

There is no question that the scholarly publishing business is in a state of considerable flux. This is primarily due to the development of electronic publishing technologies. For many years, I have studied the dynamics and development of the electronic publishing industry, and have been helped by the fact that for 12 years (1980-1992) I was a middle or senior manager in a number of electronic publishing companies. The oldest article in my submission provided predictions for the future of the online information industry – predictions that have partly come true![26] In more recent years, the opportunities and threats posed by the Open Access model of scholarly publishing has attracted a lot of interest.

Almost by definition, this entire area is not amendable to "scientific" research in a sense of conducting experiments and assessing cause and effect. Thus, much of the research that is undertaken involves collecting data on what people actually do, or in assessing peoples' opinions on developments.

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[22] See item 61 in the publications list

[23] See items 114 and 115 in the publications list

[24] "Impact Factor" is a citation-based measure of the impact of a scholarly journal

[25] This law initially was used to describe the scatter of journal articles in a given subject amongst journal titles, but has many other applications, such as describing the scatter of borrowing habits of library users.

[26] See item 6 in the publications list

My research in this field has been wide-ranging. I have a long-standing interest in the evaluation of information retrieval softwares and abstracting and indexing services. In two widely cited articles, I and a student under my supervision developed criteria for the evaluation of abstracting and indexing services run on CD ROM[27]. These criteria have been widely applied since, but with the decline of such CD ROM services in favour of Web-based and online search engines, some of the criteria we developed have become obsolete. Similar work, this time associated with funded research and a paid RA, resulted in a widely used review, mentioned earlier in this discussion section, of the methods of evaluating Web search engines[28]. We particularly drew attention to the novel idea that ESL (Estimated Search Length) would be an appropriate way to evaluate Web search Engines.

The first of my research papers to consider the impact of the growth of electronic publishing in the traditional scholarly publishing was a result of a student research project.[29] At the time of this research (1998), the concept of the hybrid library, i.e., one which seamlessly combines electronic and print resources, was the subject of much heated discussion, but with little light being shed. We analysed the various models of the hybrid library that had been proposed, and as a result developed our own novel model, which was tested with a number of interviewees. As a result, some coherent thinking was introduced into the debate. Shortly afterwards, I, together with Fytton Rowland in the Department and a Masters student, Claire Greenhalgh, published the outcome of research we carried out on behalf of the Department of Trade and Industry on the future of the scholarly publishing industry[30]. The full research report appeared under the name of the DTI official who managed us[31]; we had agreed to this somewhat curious arrangement as a condition of the funding, but permission had been given by DTI for us to publish journal articles based upon the research in our own names. The research involved a survey of a very large number of electronic publishers and identified their plans, hopes and fears for their industry in the future. Key issues that were highlighted included Intellectual Property Rights and the lack of suitably trained graduates with skills in the field. Partly as a result of these findings, my Department launched its successful MSc in Electronic Publishing programme in 2002.

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[27] See items 32 and 33 in the publications list

[28] See item 61 in the publications list

[29] See item 60 in the publications list

[30] See item 63 in the publications list

[31] It appeared as Williams, P. *The Advance of electronic publishing* Department of Trade and Industry (1999). The report had only a limited circulation and was not given as ISBN.

The economics of electronic publishing have long been contentious. Traditional print publishing companies find it difficult to tease out income and expenditure for the electronic component of their business from the print equivalents, and this is combined with reluctance by many companies to release commercial in confidence information. Key texts[32] often rely on imaginary or speculative figures. Open Access is a contentious new business model for scholarly publishing, which involves providing the electronic version of scholarly journal articles free of charge to anyone who wishes to read them and has the technical capability to do so, i.e., a networked PC. The model is contentious because the economics of Open Access are unclear, because scholarly journal publishers who rely on the well-established up front subscription model feel threatened by the new environment and because of social, cultural, legal and technical barriers to changing the existing way that scholarly publishing is undertaken. Despite the strident claims by the proponents of Open Access, the case in favour of Open Access, though intuitively compelling, is not yet proven. For these reasons, there is a lot of interest in undertaking research on the economic, cultural and legal aspects of the new electronic publishing models. JISC funded me to conduct some economic modelling exercises in various fields of electronic publishing. The result was a series of papers[33], one on general developments in the field of electronic journals[34], and others on the economics of various types of distribution mechanism[35] using the iThink modelling software. The co-author of these papers, Leah Halliday, was my Research Assistant for these projects. The benefit of using modelling software was the ability to amend input data, assumptions and conditions extremely flexibly. As a result, scenarios could be identified where the particular service broke even or made a profit. The research also helped highlight areas of hidden cost that had not been identified hitherto. In recent years, similar exercises by others have been undertaken to assess the financial viability of Open Access journals.[36]

Pursuing the economics line, the JISC-funded PELICAN project examined possible business models for the provision of course texts in digital form for HEIs. A number of popular and professional journal articles[37] were written about this project, but the major research outputs were a lengthy report for

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[32] Such as R.B. Peek and G.B. Newby, *Scholarly publishing: the electronic frontier* MIT Press 1996, and C. Tenopir and D.W. King, *Towards electronic journals*, Special Libraries Association, 2000

[33] Based on a report, item 159 in the publications list, which is not submitted because of its length

[34] See item 70 in the publications list

[35] See items 67, 71 and 74 in the publications list

[36] Such as the 2005 report by Mary Waltham Associates for JISC noted at http://www.jisc.ac.uk/index.cfm?name=jcie_scg

[37] Such as items 79 and 88 in the publications list, not part of the submission

JISC[38] and a journal article summarising the key findings.[39] The various pricing strategies considered were examined both by JISC and, more importantly, by the commercial digitised text provider HERON (now part of Ingenta plc). Arguably its current successful business model is based in part on the PELICAN results.

As noted earlier, the series of papers based upon the JISC-funded ROMEO Project[40] are not submitted as part of this DSc submission, as they will form part of Ms E.A. Gadd's submission for a PhD by publication. Although I was the Principal Investigator, ROMEO was the result of Ms Gadd's own research ideas. The ROMEO survey of Copyright Transfer Agreements produced by publishers has resulted in the popular and well-respected SHERPA/ROMEO service[41] and also led to the classification of scholarly publishers as "green", "gold" and "white" in respect of their attitudes to Open Access[42]. The ROMEO Project has also directly led to other JISC-funded projects in the Open Access arena, two of which (the Copyright Knowledge Bank, and Advocacy for Open Access) are being undertaken by me, but are not yet completed.

Partly as a result of the success with the ROMEO Project, I, some colleagues in Loughborough University and the consultancy firm Key Perspectives were asked by JISC to undertake a major study on how e print repositories should be managed in the UK in the future. This resulted in a lengthy report[43] to JISC outlining the possible ways forward and identifying some of the legal and technical risks with each approach. Three options were offered – a completely *laissez faire* approach, a tightly managed centrally controlled approach, and a managed approach with a variety of umbrella organisations assisting those staff or organisations that did not have the technical capability or resources to set up an e print repository themselves. The preferred option was a series of independent repositories, all linked by common metadata harvesting protocols. Although only published a year ago, this report has been influential in the planning process for repositories in the UK in the future, and indeed, the general approach is now for a number of institutional

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[38] Item 161 in the publications list; because of its length (107 pages), it has not been submitted as part of the supporting evidence

[39] See item 84 in the publications list

[40] Items 91, 93, 94, 95, 97, 98, 100, 107 and 108 in the publications list

[41] At http://www.sherpa.ac.uk/romeo.php

[42] "Green" means a journal gives permission for the article's author to also place the article in an Open Access repository; "gold" means the article is only available in an open access repository; "white" means there are restrictions on what can be done with the journal article imposed by the publisher.

[43] Item 164 in the publications list

and subject-based repositories, all following the same metadata harvesting protocol.

Another theme reflected in the scholarly literature studies submitted is the impact of the RAE on scholarly publishing in business and management studies and other subject areas[44], and studies on the general development of the RAE and peer review processes[45]. These were jointly authored with Valerie Bence, one of my PhD students. Finally, a Masters' dissertation led to a research article evaluating the potential for e books in the travel book publishing industry[46].

Legal issues (21 articles submitted)

My research output on legal issues associated with the production, dissemination and retrieval of information date back to 1978 in the case of patents, 1986 in the case of data protection, 1987 in the case of trade marks, 1989 in the case of copyright, 1995 in the case of legal liability of information professionals and 1999 in the case of Freedom of Information[47]. For many years I have published articles updating information professionals on legal developments, starting with[48]. Whilst I am best known nationally and internationally for my research in copyright, all these aspects of law are of interest to me. As can be seen from the publications list, I regularly write updates and book chapters on legal issues, and my own book (item 167 in the publications list, not submitted because of its length) ran to four editions. A major review of legal issues in information work was written jointly with a Visiting Research Fellow[49] following an approach by the editor of the *Annual Review of Information Science and Technology*, which is the major review publication in information science. An update to this chapter, but this time solely authored by me, is due to appear in *Sage Handbook of Information Science and Management* in 2007.

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[44] Items 80 and 101 in the publications list

[45] Items 113 and 119 in the publications list

[46] Item 87 in the publications list

[47] C. Oppenheim, Patent systems evolve, *IMS Monitor Report Europe*, 1978, **2**, 34-8.; C. Oppenheim, The Data Protection Act, *J. Chartered Institute of Patent Agents*, 1986, **15**, 364-5; C. Oppenheim, UK Service Marks: who are the users?, *Trademark World*, 1987, No. 5., 39-41. C. Oppenheim, The new UK Copyright Act and the EEC Copyright Green Paper, *Advanced Information Report*, 1989, 10(12), 5-20; A. Muir and C. Oppenheim, The legal responsibilities of the health-care librarian, *Health Libraries Review*, 1995, **12**, 91-99. See also item 56 in the list of publications.

[48] C. Oppenheim, Legal issues for information professionals: some recent developments, *Information Services and Use*, 1991, **11**, 73-85; this is item 21 in the publications list

[49] Item 185 in publications list

Data protection

My research in data protection has focussed on the impact of data protection legislation on the day-to-day work of information professionals. This early work on attitudes and knowledge of data protection revealed worrying gaps at the time.[50] Fortunately, knowledge about the Act is now much more common. Further work was undertaken in a Resource-funded study on data protection in privacy for the patrons of public libraries[51]. A large-scale survey, together with interviews and focus groups, highlighted a number of concerns (expressed by patrons, by librarians, or by the authors of the report) regarding the protection of patrons' privacy[52]. The authors of the study were the project management team together with two Research Associates. The concerns raised are even more topical due to the passage of anti terror legislation that puts further pressure on librarians to reveal their patrons searching and borrowing patterns. It is gratifying to see CILIP, the main professional association for library and information professionals, lobbying Government on this matter.

Copyright

Much of my interest in copyright focuses on the tension between copyright owners and users. I have written a major think piece on the tensions facing copyright in the electronic environment. I made a prediction that if copyright law continues to be strengthened thanks to lobbying by the copyright owners, there is a real risk of a breakdown between owners and users.[53] The pressure to strengthen copyright law has continued since I wrote that article, but the efforts of those opposed to this trend to develop alternative models, such as those involved in developing copyleft, Open Source Software, Creative Commons licences and Open Access, give rise to some hope that such a major breakdown may not occur.

The first piece of copyright-related research submitted was undertaken at a time when publishers had set their face against permitting what was then called "electrocopying" (and now simply "scanning" or "digitising") of printed materials. This research[54], undertaken with a then Masters student at Strathclyde University, now a fellow member of staff at Loughborough,

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[50] Items 24 and 26 in the publications list

[51] The full report, not submitted because of its length, is item 162 in the publications list

[52] Item 90 in the publications list

[53] Item 62 in the publications list

[54] Item 28 in the publications list

demonstrated by means of a survey and face-to-face interviews with key stakeholders how the then publishers' policies were untenable in the medium term – as indeed, they turned out to be. This work was followed up some years later with the outcome of a JISC-funded study on how to make copyright clearance and digitisation a reality in UK Higher education. Mark Bide, a well-known digital rights consultant and I, jointly supervised this work. The other author was our Research Assistant.[55] The community has accepted the recommendations made as a result of our research into what would be acceptable mechanisms for rights clearance.

One interesting area of tension between rights holders and users is in the area of fanzines. Many Internet-based fanzines of popular TV series routinely download and disseminate scripts and/or video footage from their favourite series. This has led to a somewhat schizophrenic reaction by studios that own the rights to these copyright materials. Some owners are laid back about the business because they believe further publicity can only benefit their series, but others take a very severe line, similar to that of music companies regarding file swapping, and routinely threaten copyright infringement action. A student supervised by me investigated these issues by means of interviews and e mails exchanges, and concluded that the organisations that kept threatening legal action were acting in a counter-productive manner.[56] There is no evidence that rights holders have learned from these lessons.

Similar research, this time on students' downloading of music, was carried out by one of my students. The research involved questionnaires and interviews of students, shopkeepers, computer services staff and rights holders. The research demonstrated that those students who illegally downloaded the most were also the ones that purchased the most music[57]. This is not the sort of result that the music industry wants to hear; arguing as it does that illegal downloads cause large losses in sales. The level of illegal downloading was, however, worrying, as arguably the universities allowing their systems to be used in this way could be sued for authorising infringement. Arguably, the research is now out of date as it was conducted before the launch of iPod and iTunes (though we noted that the then proposed launch would have a profound impact in the future). This is clearly an area of research that needs to be brought up to date.

There is a curious anomaly in copyright law regarding writings by anarchists. Anarchists in principle are opposed to all laws – "do away with the

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[55] Item 52 in the publications list

[56] Item 58 in the publications list

[57] Item 103 in the publications list

institutions that curtail your liberty and interfere with your life, the condition that compels you to act differently from the way you would really like to."[58] Thus, they should be opposed to copyright. One of my Masters students tested this idea by approaching a large number of anarchists and anarchist publishers. She found a varied approach, with some being very happy to have their writings reproduced without permission, but a significant number of prominent individuals and publishers strongly supportive of copyright laws and who might use the law to gain redress.[59] Some were happy for fellow anarchists to copy, but not for anyone else to. This research, which was reported in the national press, arguably shows inconsistency in anarchist thought.

A survey was carried out by a Research Assistant under my supervision on the copyright advice given by, and given to, library staff.[60] It demonstrates that in many HEIs, the library staff are viewed as the first port of call for any copyright queries, yet many of them do not feel at all confident about giving such advice and there is a strong need for more guidance and training in the field.

Not all of my copyright research relates to current events. The one historical article submitted[61] describes research I undertook into the attitudes to copyright and legal deposit of a notable anti-copyright MP from the 19th century, Robert MacFie. Based upon Macfie's original writings, a picture emerged of an MP obsessed with destroying copyright. Unfortunately for him, after being twice elected, he lost in a General Election and vanished from sight. However, some of his attitudes retain a resonance for anti-copyright campaigners today.

Freedom of Information

My first research contribution to this topic was the result of supervising an undergraduate dissertation student at a time when FoI was being discussed, but had not yet occurred in the UK.[62] Based on a survey of UK libraries, it was clear that FoI represented both a threat (to UK public libraries in particular, who could find themselves a target of FoI requests) and an opportunity (for librarians to act on behalf of those wishing to make FoI requests, and for enhancing the reputation of library and information staff as

[58] A. Berkman, *ABC of anarchism* Freedom Press 1964, page 10.
[59] Item 86 in the publications list
[60] Item 112 in the publications list
[61] Item 55 in the publications list
[62] Item 56 in the publications list

records management and information retrieval skills would be in high demand in the future). Whilst the threats do not appear to have occurred, the opportunities certainly have. More recent research[63] focussed on preparations made and implemented systems in various public authorities, including the police, to cater for both FoI and data protection inquiries.

Disability issues

Other research in the legal area includes survey-based research on compliance of libraries with the provisions of the SENDA legislation for disabled students in further and higher education. A Masters student under my supervision found that many libraries were not compliant with the Act.[64] More recent research with another Masters student (not yet published) confirms that the situation has not improved much in the intervening years. Similarly, another student under my supervision found that many Web search facilities provided by colleges and Universities were not acceptable to those with visual disabilities. This research involved asking a number of visually impaired students to attempt searches using various search tools.[65]

Conclusions

This report has shown how my research has had major impact in three major areas – citation studies (especially in connection with evaluation of individuals, the RAE and patent citation studies), the economics and management and legal issues associated with new scholarly publishing models, and legal issues that affect information professionals. In addition, my other studies, such as on evaluation of Web search engines and CD ROM services, and student citation practices, have been influential.

[63] Item 105 in the publications list
[64] Item 99 in the publications list
[65] Item 59 in the publications list

Charles Oppenheim' s publications, 1985 – 2005 relevant to the submission of the DSc

A complete list of publications can be found in the c.v. appended. * indicates this is a refereed (Category 11) journal article, a refereed conference paper or book chapter. **L** indicates this is an item relevant to legal issues, **S** indicates this is an item relevant to scholarly publishing and **B** indicates this an item relevant to bibliometrics. † indicates that this is a paper, which is referred to in the commentary text and for which a copy is supplied in the Appendix. The number of citations to these copied papers, as taken from the *Web of Science* in November 2005 is shown in brackets at the end of its bibliographic record.

Journal articles

1 **L** C. Oppenheim, What next in patent information? *The Inventor*, 1985, **25**(1), 2-5.

2 **L** C. Oppenheim, How do brand names work? *MIMS Magazine*, June 1985, 77-78.

3 **L*** C. Oppenheim, Patent novelty: proposals for changes and their possible impact on information scientists, *Journal of Information Science*, 1985, **10**, 181-6.

4 **S** C. Oppenheim, New technology and the future of host computer services, *AIOPI Newsletter*, June 1985, 1-4.

5 **S** C. Oppenheim, Information - a key to power: current trends in online databases, *Information and Library Manager*, 1985, **4**, 100-105.

6 **S*†** C. Oppenheim, Online information services: present plans and future prospects, *International Journal of Micrographics and Video Technology*, 1985, **4**, 85-90. (Cited 2 times W)

7 **B*†** C. Oppenheim, Use of the GET Command for bibliometric analysis of patent information, *World Patent Information*, 1986, **8**, 98-103. (Cited once W)

8 **S*** C. Oppenheim, The Patent Office databases on Pergamon Infoline, *World Patent Information*1986, **8**, 185-192.

9 **S** C. Oppenheim, Online patent information: trends and hopes, *Information World Review*, May 1987, i-ii.

10 S* C. Oppenheim, The unimportance of online bibliographic information, *International Journal of Information Management*, 1987, **7**, 195-202.

11 S C. Oppenheim, Online information - profit and loss. *City Screen Bulletin*, 1988, 5th January, 4-5.

12 S* M.H. Hasso and C. Oppenheim, Secondary services in Archaeology: an evaluation, *J. Librarianship and Information Science of Iraq*, 1987, **12**, 1-18.

13 S C. Oppenheim, Lockheed sells DIALOG to Knight Ridder - comments, *Advanced Information Report*, 1988, **10**(5), 2-4.

14 L C. Oppenheim, The new UK Copyright Act and the EEC Copyright Green Paper, *Advanced Information Report*, 1989, **10**(12), 5-20.

15 S C. Oppenheim, The role of the European Commission in the information industry and the IMPACT programme, *Advanced Information Report*, 1989, **11**(8), 5-7.

16 L C. Oppenheim, Databases Copyright and the EEC, *Advanced Information Report*, 1990, (6), 1-5.

17 L C. Oppenheim, Data protection: stricter controls to come? *Advanced Information Report*, 1990 (12) 1-4.

18 L C. Oppenheim, Should information providers be liable for the information they provide? *Advanced Information Report*, 1991, (1), 1-4.

19 S C. Oppenheim, The European Commission's IMPACT Programme, *Information Management Report*, 1991 (8), 10-13.

20 L C. Oppenheim, Database licensing: licensing agreements for the exploitation of copyright material, *Managing Intellectual Property*, 1991 (60), 27-31.

21 L*† C. Oppenheim, Legal issues for information professionals: some recent developments, *Information Services and Use*, 1991, **11**, 73-85. (Cited 5 times W)

22 L* C. Oppenheim, The new European Draft Directive on Database Copyright, *Information Services and Use*, 1992, **12**, 275-282.

23 L C. Oppenheim, Electronic Copyright, *Information Management Report*, 1993, January, 9-14.

24 L* † S. Ellis and C. Oppenheim, Data Protection and the media: background to the Data Protection Act and the EC Draft Directive on Data

Protection, *Journal of Information Science*, 1993, **19**, 85-97. (Cited twice W; cited three times G)

25 **L** C. Oppenheim, Recent EC Initiatives on copyright, *Information Management Report*, 1993, February, 9-13.

26 **L*** † S. Ellis and C. Oppenheim, Attitudes to data protection amongst UK media librarians, *Journal of Information Science*, 1993, **19**, 99-117. (Cited 3 times W)

27 **L** C. Oppenheim, Database copyright and the Information Broker, *Advanced Searcher*, 1992, **2**(5/6), 3-14.

28 **L*†** A. Muir and C. Oppenheim, Electrocopying, the Publishers Association and academic libraries, *Journal of Librarianship and Information Science*, 1993, **25**, 175-186. (Cited 5 times W)

29 **S** C. Oppenheim, Network publishing - the future, *The Bookseller*, 20th August 1993, no. 4574, p. 22-28.

30 **L*** C. Oppenheim, China's intellectual property rights and scientific and technical information services, *Aslib Proceedings*, 1993, **45**, 261-266.

31 **S** C. Oppenheim, Some recent developments in the online business information industry, *Advanced Searcher*, 1993, **3**(4), 4-11.

32 **S*** † V. Harry and C. Oppenheim, Evaluation of electronic databases, Part I: criteria for testing CDROM products, *Online and CD ROM Review*, 1993, **17**, 211-222. (Cited 15 times W; cited 6 times G)

33 **S*** † V. Harry and C. Oppenheim, CD ROM evaluation Part II, Testing CDROM Products *Online and CD ROM Review*, 1993, **17**, 339-368. (Cited 8 times W)

34 **S*** C. King and C. Oppenheim, Marketing of online and CDROM databases, *Online and CD-ROM Review*, 1994, **18**, 1-12.

35 **B*** † L.M. Baird and C. Oppenheim, Do citations matter?, *Journal of Information Science*, 1994, **20** (1), 2-14. (Cited 42 times W; cited 31 times G)

36 **L** C. Oppenheim, Electronic copyright and the law librarian, *The Law Librarian*, 1994, **25**, 106-111.

37 **S** C. Oppenheim, Historical on-line database services: the Monopolies and Mergers Commission report, *Business Information Review*, 1994, **11** (2), 17-23.

38 **S** T. Eisenschitz, C. Andrews, C. Oppenheim and M. Walker, Use and importance of Lexis in England and Scotland, *The Law Librarian*, 1994, **25**, 219-226.

39 **L** C. Oppenheim, Document delivery and electronic copyright, *Information Management Report*, March 1995, 1-6.

40 **B*** **†** C. Oppenheim, The correlation between citation counts and the 1992 Research Assessment Exercise Ratings for British library and information science university departments, *journal of Documentation*, 1995, **51**, 18-27. (Cited 29 times W; cited 19 times G)

41 **L** C. Oppenheim, The implications of copyright legislation for electronic access to journal collections, *Journal of Text and Document Management*, 1994, **2**, 10-22.

42 **L** A. Muir and C. Oppenheim, The legal responsibilities of the health-care librarian, *Health Libraries Review*, 1995, **12**, 91-99.

43 **L** C. Oppenheim, The legal issues associated with Electronic Copyright Management Systems, *http://ukoln.bath.ac.uk/ariadne/issue2/copyright/* (March 1996).

44 **L** C. Oppenheim, Some legal issues for electronic information, *International Forum on Information and Documentation*, 1996, **21**(1), 10-18.

45 **L*** C. Oppenheim, HMSO and Crown Copyright, *Journal of Information Law and Technology (http://jilt.law.strath.ac.uk/elj/jilt/leginnfo/2oppenhe/)* (May 1996)

46 **L** C. Oppenheim, Moral Rights and the Electronic Library, *http://www.ukoln.ac.uk/ariadne/issue4/copyright/* (July 1996)

47 **B** C. Oppenheim, Do citations count? Citation indexing and the Research Assessment Exercise, *Serials*, 1996, **9**, 155-161.

48 **L** C. Oppenheim, Intellectual Property: Legal and other issues, *Information Studies*, 1997, **3** (1), 5-22.

49 **L** C. Oppenheim, Cause for concern? Copyright battles in the Shetlands, *Learned Publishing*, 1997, **10**, 161-164.

50 **L*** C. Oppenheim, The legal deposit of non-print publications, *Journal of Information Law and Technology, http://elj.warwick.ac.uk/jilt/legdep/97_3opp/* (November 1997).

51 **B*†** C. Oppenheim, The correlation between citation counts and the 1992 Research Assessment Exercise ratings for British research in genetics, anatomy and archaeology, *Journal of Documentation*, 1997, **53** (5), 477-487. (Cited 23 times W; cited 24 times G)

52 **L*†** M. Bide, C. Oppenheim and A. Ramsden, Some proposals regarding copyright clearance and digitisation in higher education, *Journal of Information Science*, 1997, **23** (6), 393-406. (Cited twice W; cited twice G)

53 **L** E. Giaverra and C. Oppenheim, EU Database directive: some clarifications, *SCONUL Newsletter*, 1997 (12), 6-7.

54 **S** M. Bide, C. Oppenheim and A. Ramsden, Charging mechanism for digitised texts, *Learned Publishing*, 1998, **11** (2), 109-118.

55 **L*†** C. Oppenheim, Robert Andrew MacFie, patents, copyright and legal deposit, *Intellectual Property Quarterly*, 1998 (4), 383-399.

56 **L*†** M.A. Blackstock and C. Oppenheim, Legal issues for information professionals V: Freedom of Information, *Journal of Information Science*, 1999, **25** (4), 249-264. (Cited 3 times G)

57 **L** C. Oppenheim, Recent developments on the copyright scene, *Serials*, 1999, **17** (2), 107-110.

58 **L*†** C. Oppenheim and M. Turner, Copyright and Internet fanzines, *Aslib Proceedings*, 1999, **51** (9), 290-301. (Cited once W; cited once G)

59 **L* †** C. Oppenheim and K. Selby, Access to information on the World Wide Web for blind and visually impaired people, *Aslib Proceedings*, 1999, **51** (10), 335-345 (Cited 6 times W; cited 10 times G).

60. **S* †** C. Oppenheim and D. Smithson, What is the hybrid library? *Journal of Information Science*, 1999, **25** (2), 97-112 (Cited three times W; cited 19 times G)

61 **B* †** C. Oppenheim, A. Morris, C. McKnight and S, Lowley, The evaluation of WWW search engines, *Journal of Documentation*, 2000, **56** (2), 190-211 (Cited 17 times W; cited 21 times G)

62 **L* †** C. Oppenheim, Does copyright have a future on the Internet?, *Journal of Documentation*, 2000, **56** (3), 279-298. (Cited four times W; cited three times G)

63 **S*†** C. Oppenheim, C. Greenhalgh and F. Rowland, The future of scholarly journal publishing, *Journal of Documentation*, 2000, **56** (4), 361-398. (Cited 6 times W; cited 9 times G)

64 **L** C. Oppenheim, The new Data Protection Act, *Deadline*, 2000 **15** (2), 2-5. Also appeared at: http://www.aukml.org.uk/deadmar00.htm#art1

65 **L** B. Boguscz, J.E. Davies and C. Oppenheim, Personal information in UK public registers: its availability and use, *Business Information Review*, 2000, **17** (2), 82-96.

66 **S** L. Halliday and C. Oppenheim, Economic models of digital only journals, *Serials*, 2000, **13** (2), 59-65.

67 **S*†** L. Halliday and C. Oppenheim, Comparison and evaluation of some economic models of digital-only journals, *Journal of Documentation*, 2000, **56**(6), 660-673. (Cited twice W; cited 5 times G)

68 **B*†** G. Shama, K. Hellgardt and C. Oppenheim, Citation footprint analysis I: UK and US chemical engineering academics, *Scientometrics*, 2000, **49** (2), 289-305. (Cited twice W; cited twice G)

69 **B*†** A. Holmes and C. Oppenheim, Use of citation analysis to predict the outcome of the 2001 RAE for Unit of Assessment 61: Library and Information Management, *Information Research*, 2001, **6** (2), http://www.shef.ac.uk/~is/publications/infres/6-2/paper103.html. (Cited 10 times G)

70 **S*†** L. Halliday and C. Oppenheim, Developments in digital journals, *Journal of Documentation*, 2001, **57** (2), 260-283. Translated in Korean in: *Kungnip Chungang Tosogwan, 2001*, **56** (4), 109- 144. (English-language version cited twice W; cited 7 times G))

71 **S*†** L. Halliday and C. Oppenheim, Economic aspects of a Resource Discovery Network, *Journal of Documentation*, 2001, **57** (2), 296-302. (Cited once G)

72 **S** R. Hardy, C. Oppenheim and I. Rubbert, PELICAN: working towards the development of a suitable pricing mechanism for the electronic distribution of materials in the Higher Education community, *SCONUL Newsletter*, 2001 (21), 31-33.

73 **S** R. Hardy, C. Oppenheim and I. Rubbert, PELICAN: a pricing mechanism for the electronic distribution of materials in the Higher Education community, *Learned Publishing*, 2001, **14** (2), 93-96.

74 **S*†** L. Halliday and C. Oppenheim, Economic aspects of a National Electronic Reserve Service, *Journal of Documentation*, 2001, **57** (3), 434-443. (Cited once W; cited once G)

75 **L** A. Warren, J. Dearnley and C. Oppenheim, Sources of literature on data protection and human rights, *Journal of Information Law and Technology*, 2001, http://elj.warwick.ac.uk/jilt/01-2/warren.html.

76 **L** C. Oppenheim, The new Directive on copyright and related rights, *Learned Publishing*, 2001, **14** (3), 205-212.

77 **L** C. Oppenheim, Legal issues for information professionals VI: copyright issues in digitisation and the hybrid library, *Information Services and Use*, 2000, **20** (4), 203-210.

78 **L** C. Oppenheim, Is copyright strangling higher education?, *UKOLUG Newsletter*, 2001 **12** (5), 26-29.

79 **S** R.L. Hardy, C. Oppenheim and I. Rubbert, PELICAN: working on a solution to the pricing problem, *Assignation*, 2001, **19** (1), 27-30.

80 **S*†** V. Bence and C. Oppenheim, Journals, scholarly communication and the RAE: a case study of the business and management sector, *Serials*, 2001, **14** (3), 265-273. (Cited twice G)

81 **B* †** K. Hellgardt, G. Shama and C. Oppenheim, Use of numerical taxonomy and journal impact factors in the evaluation of chemical engineering academics' publi cations, *Journal of Information Science*, 2001, **27** (6), 371-375.

82 **S** R.L. Hardy, C. Oppenheim and I. Rubbert, PELICAN: one step closer to the solution of the pricing problem, *Information Services and Use*, 2001, **21** (3/4), 157-164.

83. **B* †** C. Oppenheim and R. Smith, Student citation practices in an Information Science Department, *Education for Information*, 2001, **19** (4), 299-323. (Cited twice W; cited 4 times G)

84 **S*†** R.Hardy, C. Oppenheim and I. Rubbert, Pricing strategies and models for the provision of digitized texts in higher education, *Journal of Information Science*, 2002, **28** (2), 97-110. (Cited twice W; cited once G)

85 **L** C. Oppenheim, Practical difficulties of the EU Directive for LIS Professionals, *Managing Information*, 2002, http://www.managinginformation.com/copyright_difficulties.htm?id=646

86 **L*†** E. Clement and C. Oppenheim, Anarchism, alternative publishers and copyright, *Anarchist Studies*, 2002, **10** (1), 41-69.

87 **S*†** C. Oppenheim and T. Randall, the UK market for travel e-books, *Publishing Research Quarterly*, 2002, **18** (1), 14-37.

88 **S** C. Oppenheim, Will PELICAN fly?, *Serials*, 2002, **15** (2), 105-110.

89 **L*** A. Muir and C. Oppenheim, National Information Policy developments worldwide IV: copyright, Freedom of Information and data protection, *Journal of Information Science*, 2002, **28** (6), 467-482. (Cited once G)

90 **L*†** P. Sturges, E. Davies, J. Dearnley, U. Iliffe, C. Oppenheim and R. Hardy, User Privacy in the digital library environment: an investigation of policies and preparedness, *Library Management*, 2003, **24** (1/2), 44-50. (Cited once G)

91 **S** E.A. Gadd, C. Oppenheim and S.G. Probets, Self archiving – the 'right' thing? An introduction to the ROMEO Project, *SCONUL Newsletter*, 2002, (27), 34-37.

92 **S** S. Harnad, L. Carr, T. Brody and C. Oppenheim, Mandated online RAE CVs linked to University eprint archives: enhancing UK research impact and assessment, *Ariadne*, 2003, http://www.ariadne.ac.uk/issue35/harnad/

93 **LS*** E. Gadd, C. Oppenheim and S. Probets, ROMEO Studies I: the impact of copyright ownership on academic author self-archiving, *Journal of Documentation*, 2003, **59** (3), 243-277.

94 **LS** E. Gadd, C. Oppenheim and S. Probets, The RoMEO Project: Protecting metadata in an open access environment, *Ariadne*, 2003 (July), at: http://www.ariadne.ac.uk/issue36/romeo/

95 **LS** E. Gadd, C. Oppenheim and S. Probets, The Intellectual Property Rights issues facing self-archiving, *D-Lib magazine*, September 2003, at: http://www.dlib.org/bonnie/spetember03/gadd/09gadd.html

96 **L** C. Oppenheim, The new copyright legislation, *Managing Information*, 2003, **10** (7), (September) 38-40.

97 **LS*** E. Gadd, C. Oppenheim and S. Probets, ROMEO Studies 4: an analysis of journal publishers' copyright agreements, *Learned Publishing*, 2003, **16** (4), 293-308.

98 **S*** E. Gadd, C. Oppenheim and S. Probets, ROMEO 3: how academics expect to use open-access papers, *Journal of Librarianship and Information Science*, 2003, **35** (3), 171-188.

99 **L*** † C. Harris and C. Oppenheim, The provision of library services for visually impaired students in UK FE libraries in response to the SENDA, *Journal of Librarianship and Information Science*, 2003, **35** (4), 243-257. (Cited once G)

100 **LS*** E. Gadd, C. Oppenheim and S. Probets, RoMEO Studies 2: how academics want to protect their open-access research papers, *Journal of Information Science*, 2003, **29** (5), 333-356.

101 **S*†** V. Bence and C. Oppenheim, The role of academic journal publication in the UK Research Assessment Exercise, *Learned Publishing*, 2004, **17** (1), 53-68. (Cited three times W; cited twice G)

102 **B*** † M. Norris and C. Oppenheim, Citation counts and the Research Assessment Exercise V: Archaeology and the 2001 RAE, *Journal of Documentation*, 2003, **59** (6), 709 – 730. (Cited once W; cited 4 times G)

103 **L*** † C. Oppenheim and M. Robinson, Loughborough University students' attitudes to P2P mu sic file sharing, *Journal of Information Law and Technology*, 2003, **8** (2), http://elj.warwick.ac.uk/jilt/03-2/oppenheimandrobinson.htm

104 **L** C. Oppenheim, Newspaper copyright developments: a European Union and UK perspective, *IFLA Journal*, 2003, **29** (4), 317-320.

105 **L*†** A. Warren and C. Oppenheim, Integration of roles? Implementing new information laws in UK public organizations, *Journal of Information Science*, 2004, **30** (1), 43-54.

106 **L** Legal issues for information professionals VII: How UK Copyright Law has changed with the EU Directive, *Freepint*, 2004, http://www.freepint.com/issues/190204.htm#feature

107 **LS*** E. Gadd, C. Oppenheim and S. Probets, RoMEO Studies 6: rights metadata in open archiving, *Program*, 2004, **38** (1), 5-14.

108 **LS** E. Gadd, C. Oppenheim and S. Probets, RoMEO studies 5: IPR issues facing OAI data and service providers, *The Electronic Library*, 2004, **22** (2), 121-138

109 **S** S. Harnad, T. Brody, F. Vallieres, L. Carr, S. Hitchcock, Y. Gringras, C. Oppenheim, H. Stamerjohanns and E.R. Hill, The green and gold roads to open access, *Nature*, 2004, http://www.nature.com/nature/focus/accessdebate/21.html

110 **B*†** C. Oppenheim and D. Stuart, Is there a correlation between investment in an academic library and a higher education institution's ratings in the Research Assessment Exercise?, *Aslib Proceedings*, 2004, **56** (3), 156 – 165.

111 **B*†** T. Ahmed, B. Johnson, C. Oppenheim and C. Peck, Highly cited old papers and the reasons why they continue to be cited II: the 1953 Watson and Crick article on the structure of DNA, *Scientometrics*, 2004, **61**(2), 147-156. (Cited once)

112 **L*†** C. Oppenheim and I. Woodward, A survey of copyright advice and guidance in UK higher education libraries, *Library and Information Research*, 2004, **28** (89), 50-53.

113 **S*†** V. Bence and C. Oppenheim, The influence of peer review on the Research Assessment Exercise, *Journal of Information Science*, 2004, **30** (4), 347-368.

114 **B*†** V. Bence and C. Oppenheim, A comparison of journal submissions to the UK's RAE 1996 and 2001 for UoA 43 (Business and Management Studies), *European Management Journal*, 2004, **22** (4), 402-417.

115 **B*†** V. Bence and C. Oppenheim, Does Bradford-Zipf apply to business and management journals in the 2001 Research Assessment Exercise? *Journal of Information Science*, 2004, **30** (5), 469-474. (Cited once)

116 **S*** R. Hardy and C. Oppenheim, Research on University Presses: an overview of UK University Presses, *Publishing Research Quarterly*, 2004, **20**(2), 18-31.

117 **S*** S. Harnad, T. Brody, F. Vallieres, L. Carr, Y. Gringras, C. Oppenheim *et al*, The access/impact problem and green and gold roads to Open Access, *Serials Review*, 2004, **30**(4), 310-314.

118 **S*** C. Oppenheim, Open access and the UK Science and Technology Select Committee Report "Free for All?", *Journal of Librarianship and Information Science*, 2005, **37** (1), 3 – 6.

119 **S*†** V. Bence and C. Oppenheim, The evolution of the UK's Research Assessment Exercise: publications, performance and perceptions, *Journal of Educational Administration and History*, 2005, **37** (2), 137-155.

120. **L** C. Jenkins, S. Probets and C. Oppenheim, The JISC/SURF 'Partnering on Copyright' Project, *ALISS Quarterly*, 2005, **1** (1), 28-31

Published Conference Papers

121 **B*†** C. Oppenheim, Use of online databases in bibliometric studies, Proceedings of the International Online Information Meeting, 1985, **9**, 355-364. (Cited twice)

122 **LS*** C. Oppenheim, Loading databases: a host's experiences, Proceedings of the International Online Information Meeting, 1985, **9**, 69-75.

123 **S*** C. Oppenheim, Online information services - present plans and future prospects, Proceedings 11th IATUL Conference, 1985, 139-142.

124 **S*** C. Oppenheim, The importance of financial information online, **in** Proceedings of the International Online Information Meeting, 1987, **11**, 323-333.

125 **S*** C. Oppenheim, The convergence of real time and historical business information, Proceedings East West Information Meeting, 1989, **1**, 199-209 (the same paper, translated into Russian, also appeared in the Russian language Proceedings).

126 **S*** C. Oppenheim, Marketing of real time and bibliographic information, Proceedings of the International Online Information Meeting, 1990, **14**, 397-404.

127 **S*** C. Oppenheim, Why are bibliographic databases so unimportant? Proceedings Annual MARC User Group Conference, 1989, **15**, 13-22.

128 **S*** C. Oppenheim, Financial Information Systems, Proceedings 1991 Israeli Online Information Conference, no pagination.

129 **L** C. Oppenheim, The intellectual property jungle, **in**, Information Management and Management Information, Proceedings of the Joint Information Services Conference, University of Stirling, 1994, 102-110.

130 **L*** C. Oppenheim, Regulation and censorship on the Internet, **in** Proceedings of International Online Information Meeting, 1995, **19**, 33-40.

131 L C. Oppenheim, Intellectual property, paper presented to JISC Conference on legal issues of the Internet, *http://www.ukoln.ac.uk/services/elib/papers/other/copyright/session1/* (1997)

132 L C. Oppenheim, Copyright and Intellectual Property Rights: An International Update, **in** Marc Fresko (ed.), "Beyond the Beginning: The Global Digital Library", Proceedings of the International Conference, 159 - 160 (1998), British Library Research and Innovation Report 78. Also available at: *http://www.ukoln.ac.uk/services/papers/bl/*

133 L C. Oppenheim, Freedom of Information and Government.Direct, Proceedings of 1998 EPIP Conference, http://dils.2.lboro.ac.uk/epip/papers/oppen.html

134 L C. Oppenheim, the legal and regulatory environment for global virtual communities, Proceedings of the 2nd Virtual Communities Conference, 1999, http://www.infonortics.com/vc/1999/Oppenheim.htm

135 L C. Oppenheim, Copyright issues in distance learning, Proceedings of the Current Issues in Distance Learning Conference, Loughborough University, 1999, pp. 4-13.

136 L C. Oppenheim, Keynote Address: keeping it legal, **in:** Proceedings of the International Online Information Meeting, 1999, **23**, 143-146.

137 L C. Oppenheim, The future of intellectual property in the information society, **in** Proceedings of the 8th BOBCATSSS International Symposium, 2000, Royal School of Library and Information Science Copenhagen, pp. 20-24.

138 L C. Oppenheim, JISC/Publishers Association work on developing guidelines for copyright issues in the electronic environment, **in** P. Connolly and D. Reidy (editors), Proceedings of the International Conference on the Digital Library: Challenges and solutions for the new millennium, 2000, 39-43 (Boston Spa, IFLA, ISBN 0 9532439 7 4)

139 L C. Oppenheim, Keeping it legal: how to avoid legal problems on the Internet, **in** Proceedings of the UKOLUG Conference 2000, http://www.ukolug.org.uk/meetings/conf2000/Oppenheim.doc

140 L C. Oppenheim, the legal and regulatory environment for virtual communities, **in** Proceedings of the 2002 Virtual Communities Conference, http://www.infonortics.com/vc/vc2002/presentations/oppenheim.pdf (2002)

141 **L** C. Oppenheim, All you wanted to know about copyright but were afraid to ask, **in** Proceedings of the National Probation Research and Information Conference, 2002, National Probation Service, 51-55.

142 **L** C. Oppenheim, Information ownership, copyright and licences, Proceedings of the 8th European Conference of Medical and Health Libraries, 2002, http://www.zbmed.de/eahil2002/proceedings/oppenheim-proc.pdf

143 **L** C. Oppenheim, Copyright and the digital library, Proceedings of the South African Online User Group Conference, 2001, http://www.saoug.org.za/archive/2001/0101.pdf

144 **LS*** E.A. Gadd, C. Oppenheim and S.G. Probets, Journal Copyright Transfer Agreements: Their effect on author self archiving, **in** Proceeding of the 7th ICCC/IFIP International Conference on Electronic Publishing 2003: From Information to Knowledge, , pp 95-103. Editors: Sely Maria de Souza Costa, Joao Alvaro Carvalho, Ana Alice Baptista, Ana Cristina Santos Moreira. Publisher: Universidade do Minho. Venue: Guimaraes, Portugal. June 25-28 2003. ISBN: 972-98921-2-1. Also available at: http://elpub.scix.net/

145 **LS*** C. Oppenheim, E. Gadd and S. Probets, Developing IPR solutions for academic author self-archiving, **in** Beyond the network. Innovative IT services. Proceedings of the 9th International Conference of European University Information Systems. 2-4 July 2003, Amsterdam, Netherlands. Amsterdam : Universiteit van Amsterdam. Pp. 404-415.

146 **B** T. Brody, H. Stamerjohanns, S. Harnad, Y. Gringras and C. Oppenheim, The effect of Open Access on citation impact, paper presented at Conference on National Policies on Open Access provision for University research output, Southampton, 19 February 2004, http://www.ecs.soton.ac.uk/~harnad/Temp/OA-Taadvantage.pdf

147 **L** C. Oppenheim, Copyright, libraries and the European Union, **in** Proceedings of Polskie Biblioteki Akademickie w Unii Europejskiej Conference, Lodz, 23 – 25 June 2004, ISBN 83-900302 1 4, pp. 79-84. Also translated into Polish in supplementary volume, Materialy konferencyjne, 2004, pp 23-30.

Reports

148 **S** C. Oppenheim, The relationship between online hosts and database producers, *Library and Information Briefings* No. 29, 1991.

149 **L** C. Oppenheim, Electronic copyright, *Library and Information Briefings* No. 35, 1992.

150 **L** C. Oppenheim, Electronic copyright and the SuperJANET environment, **in** Anon, SuperJANET Project on Information Resources, 1993, 66-75.

151 **L** C. Oppenheim, Rights, **in** P. Bryant and I. Mowat, Networks, Libraries and Information, *Library and Information Briefings* No. 55/56, 1994, p. 31-36.

152 **L** C. Oppenheim, Copyright in HEIs: A Discussion Paper, **in** M. Tedd (Ed.), "Papers on copyright issues in the Electronic Library", JISC, 1995. Reproduced in: *http://bath.niss.ac.uk/education/jisc/pub/copyright/charles.htm,* later changed to: *http://www.jisc.ac.uk/pub/copyright/charles1.htm*

153 **L** . C. Oppenheim, Copyright and the Networking of Images, **in** M. Tedd (Ed.), "Papers on copyright issues in the Electronic Library", JISC, 1995. Reproduced in: *http://bath.niss.ac.uk/education/jisc/pub/copyright/charles2.htm*

154 **L** B. Tuck, C. Oppenheim and R. Yeates, Electronic Copyright Management Systems, LITC Report No. 8, 1996. Reproduced in: *http://www.sbu.ac.uk/litc/copyright/*

155 **L** M. Bide, C. Oppenheim and A. Ramsden, Copyright Clearance and Digitisation in UK Higher Education: Supporting Study for JISC/PA Clearance Mechanisms Working Party, *http://www.ukoln.ac.uk/services/elib/papers/pa/* (1997).

156 **S** M. Bide, C. Oppenheim and A. Ramsden, Charging Mechanisms for Digitised Texts: Second Supporting Study for JISC/PA (1997).

157 **L** C. Oppenheim, Copyright, *JISC Senior Management Briefing Paper 5,* JISC, 1998.

158 **L** C. Oppenheim *et al,* Copyright Guidelines for JISC and TLTP Projects, JISC, 1998. Copyright Guidelines for JISC and TLTP Projects, ISBN 1900508419. Also available at: *http://www.ukoln.ac.uk/services/elib/papers/supporting/*

159 **S*** L.L. Halliday and C. Oppenheim, Economic models for the digital library, report for eLib at: http://www.ukoln.ac.uk/services/elib/papers/supporting/#ukoln (October 1999).

160 L J.E. Davies and C. Oppenheim, Personal information in public registers, report for the Office of the Data Protection Registrar at: http://www.dataprotection.gov.uk/dpr/dpdoc.nsf (May 2000).

161 S R.L. Hardy, C. Oppenheim and I. Rubbert, Final Report of the PELICAN Project, http://www.lboro.ac.uk/departments/ls/disresearch/pelican/PELICAN5.DOC (February 2002)

162 L P. Sturges, E. Davies, J. Dearnley, U. Iliffe and C. Oppenheim, Privacy in the digital library environment, Library and Information Commission Research Report 135, Re:source, 2002.

163 L C. Oppenheim, Recent Changes to Copyright Law and the implications for FE and HE , Report for JISC (2004) http://www.jisclegal.ac.uk/publications/copyrightcoppenheim.htm

164 S † Swan, A., Needham, P., Probets, S., Muir, A., O'Brien, A., Oppenheim, C., Hardy, R. & Rowland, F. (2004) Delivery, Management and Access Model for E-prints and Open Access Journals within Further and Higher Education. http://www.keyperspectives.co.uk/OpenAccessArchive/E-prints_delivery_model.pdf also at http://www.jisc.ac.uk/journals_work.html and at http://cogprints.org/4122/ (Cited 3 times G)

165. 185. BS † R. Hardy, C. Oppenheim, T. Brody and S. Hitchcock, Open Access Citation Information, http://eprints.ecs.soton.ac.uk/11536/ and at http://www.jisc.ac.uk/uploaded_documents/iv)%20OA%20Citation%20Information%20FINAL%20Extended%20Report. (2005)

Books and book chapters

166 L C. Oppenheim, Information aspects of patents, in J. Phillips (Ed.), "Patents in Perspective", ESC Publishing, 1985, 54-67.

167 S C. Oppenheim, Online business databases, in Anon, "The International Management Development Review 1990", Volume 6, Management Centre Europe, Brussels, 1990.

168 L C. Oppenheim, Legal aspects of information management, in P. Dossett (Ed.), "Handbook of Special Library and Information Work", Aslib, 6th Edition, 1992, pp. 526-552

169 **L** C. Oppenheim, The Legal and Regulatory Environment for Electronic Information, Infonortics. First edition, 1992. Second edition, 1995. Third edition, 1998. Fourth edition, 2001.

170 **L** C. Oppenheim, Recent European Directives of relevance to information scientists, **in** M. Blake (ed.), "The Common Market for Information", Taylor Graham, 1992, pp. 77 - 89.

171 **L** T.S. Eisenschitz and C. Oppenheim, Legal Issues for information professionals, in A. Kent (ed.), Encyclopaedia of Library and Information Science, Marcel Dekker, New York, 1994, Volume 24, p. 224-261.

172 **S** C. Oppenheim, Online Information Retrieval, **in**, M. McDonald, W. Hewson and H. Wilson (eds.), "Emerging Information Technologies - A Marketing Opportunity", HCG Publications, Olney, Bucks, 1993, p. 255-261.

173 **L** C. Oppenheim, J. Phillips and R. Wall (eds.), *The Aslib Guide to Copyright*, Aslib, London, 1994-

174 **L** C. Oppenheim, Staying within the law, **in** T. Hanson (ed.), "Bibliographic software and the electronic library", University of Hertfordshire Press, Hatfield, 1995, pp. 95-107.

175 **L** C. Oppenheim, "Copyright in the electronic age", **in** P. Parrinder and W. Chernaik (eds.), "Textual Monopolies: Literary Copyright and the Public Domain", Centre for English Studies and Office for Humanities Communication, 1997, pp. 97-111.

176 **L** C. Oppenheim, Copyright, **in** J. Feather and P. Sturges (eds.), International Encyclopaedia of Information and Library Science, Routledge, 1997, pp. 92-94.

177 **L** C. Oppenheim, Copyright in the electronic age, **in** A. Large and Y. Courrier (eds.), World Information Report, UNESCO, 1997, pp. 349-360; reproduced in: http://www.unesco.org/cii/werept/chap26.htm (N.B. despite the identical title, this is a totally different text to item 175)

178 **L** C. Oppenheim, Copyright and the Internet, **in** J. Cooper, Editor, Liberating Cyberspace, Pluto Press, 1998, pp. 128-133; reprinted in: Liberty, Editor, Liberating Cyberspace, Pluto Press, 1998 (2nd edition), pp. 134-139.

179 **L** C. Oppenheim, Information ownership, copyright and licences, **in** S. Bakker (ed.), Libraries without limits: changing needs, changing roles, Kluwer, 1999, pp. 12- 17.

180 **L** J.E. Davies and C. Oppenheim, Guide to the Practical Implementation of the Data Protection Act 1998, British Standards Institution, 1999-2000.

181 **L** C. Oppenheim, Copyright and intellectual property rights, **in** C.J. Armstrong (ed.), Staying Legal, Library Association Publishing, 1999, pp. 55-74.

182 **B*†** C. Oppenheim, Do patent citations count? **in** B. Cronin and H.B. Atkins (eds.) The Web of Knowledge: A Festschrift in Honor of Eugene Garfield, Information Today [in conjunction with the American Society for Information Science], 2000, pp. 405-432. (Cited 14 times G)

183 **L** C. Oppenheim, copyright and other legal issues, **in** A.S. Robson, D. Bawden and A. Judd (eds.) Pharmaceutical and medicines information management, Churchill Livingstone, 2001, pp. 246-255.

184 **L** C. Oppenheim, Who needs a war over copyright law?, **in** CIG Yearbook 2003, City Information Group: London , 2002, pp 6-7.

185 **L*†** A. Lopez Burrull and C. Oppenheim, Legal aspects of the Web, *Annual Review of Information Science and Technology*, 2004, **38**, 483-548.

186 **L** T. Irwin and C. Oppenheim, Consent, ethics and the law, **in**: T. Irwin and J. Terbeg (editors), Perfect Medical Presentations, Edinburgh, Churchill Livingstone, 2004, pp. 135-146.

Other items

187 **B** S. Harnad, L. Carr, C. Oppenheim, J.W. McDonald and T. Champion, Can journal-based research impact assessment be generalised to book-based disciplines?, 2005, http://www.ecs.soton.ac.uk/~harnad/Temp/bookcite.htm